

BEFORE THE PUBLIC UTILITIES COMMISSION
OF THE STATE OF HAWAII

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Public Utilities Commission

In the Matter of)
)
PUBLIC UTILITIES COMMISSION) Docket No. 2008-0273
)
Instituting a Proceeding to Investigate)
The Implementation of Feed-in Tariffs.)
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THE SOLAR ALLIANCE'S AND HAWAII SOLAR ENERGY ASSOCIATION'S
COMMENTS ON PROPOSED TIERS 1 AND 2 TARIFFS

DECLARATION OF MARK DUDA

EXHIBITS "A" – "B"

DECLARATION OF KEITH CRONIN

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Pursuant to this Commission's Decision and Order filed September 25, 2009 ("FIT 9/25/2009 D&O") and Order Setting Schedule dated October 29, 2009, the Solar Alliance and Hawaii's Solar Energy Association (together, "SA/HSEA") respectfully submit their comments on the Proposed Tiers 1 and 2 Tariffs filed on January 7, 2010, including the Hawaiian Electric Company's, Hawaii Electric Light Company, Inc.'s, and Maui Electric Company's ("HECO Companies") proposed tariffs and accompanying documents ("HECO proposal"). SA/HSEA organize their comments herein into four main parts:

- First, the HECO proposal's rates for photovoltaic ("PV") systems in Tier 1 need to be somewhat increased -- from \$0.274 per kWh to \$0.297 per kWh, assuming use of the refundable, 24.5 percent state "Renewable Energy Technologies Income Tax Credit" ("RETITC") -- to provide a meaningful incentive for PV projects in Hawaii that will move the market and encourage full subscription of the tariff over the first phase, at a reasonable cost to ratepayers. SA/HSEA base this recommendation on their extensive, Hawaii- and industry-specific expertise and their compilation and analysis of actual market data from O'ahu PV projects. (SA/HSEA support the HECO proposal's rates for Tier 2 PV.)

- Second, SA/HSEA agree with the HECO proposal's inclusion of two rates for each tier of solar energy resources, based on the non-refundable, 35 percent RETITC and the refundable, 24.5 percent RETITC (i.e., 30 percent reduction in the 35 percent non-refundable rate), respectively. In response to the HECO Companies' desire for "record support" for use of the refundable credit, SA/HSEA emphasize that the RETITC law, Haw. Rev. Stat. § 235-12.5, speaks for itself by establishing both tax credits, but also review the legislative history and provide expert opinions to show definitively that the refundable, 24.5 percent credit in particular is crucial to enabling investment and development in solar projects and ensuring the success of the FIT program.
- Third, SA/HSEA have concerns about various non-rate provisions in the HECO's proposed tariff and accompanying documents. The gravest concerns focus on the continued lack of clarity and transparency on (1) curtailment and (2) interconnection costs, which fundamentally undermines the purpose of the FIT and threatens its viability. SA/HSEA emphasize that their rate proposals, including their support of the proposed Tier 2 PV rates and proposed revisions to the Tier 1 PV rates, assume additional costs, including costs of delays, are not added via the interconnection process and rules, reliability standards, or curtailment. If these assumptions are untrue, then everything changes; and in any event, the lack of clarity on this issue alone is self-defeating for the FIT program. See FIT 9/25/09 D&O at 14 (explaining the purpose of a FIT of "providing predictability and certainty").
- Fourth, SA/HSEA have equally grave concerns regarding the HECO Companies' proposed modification to Rule 14H, which impose blanket, arbitrary and oppressive limitations on grid penetration of renewables, without any forewarning, discussion, or justification. Because these proposed Rule 14H revisions directly bear on pending issues in this docket and can dictate the success or failure of the FIT program, SA/HSEA raise these concerns in this docket and request that the Commission stay the operation of most of these proposed revisions (except the increase of the grid penetration level to 15 percent of peak load, which the Energy Agreement between the HECO Companies and the State has specifically contemplated) and consolidate the matter with the ongoing deliberations and investigation herein.

We address each of these groups of comments in turn:

I. THE HECO PROPOSAL'S RATES FOR TIER 1 PV ARE TOO LOW TO MOVE THE PV MARKET IN HAWAII

Based on SA/HSEA's intimate familiarity with and extensive experience in the Hawai'i market, the rates for Tier 1 PV need to be increased from the HECO Companies' proposed \$0.274 or \$0.218 per kWh (based on the 24.5 and 35 percent state tax credits, respectively) to \$0.297 or \$0.254 per kWh in order to be effective: that is, to provide an effective market incentive for this size class that will make projects viable, move the market, and encourage full subscription of the tariff over the first phase, at a reasonable cost to ratepayers. See Duda Dec. ¶¶ 4-14. As Mark Duda, HSEA's President and a recognized expert in the Hawai'i solar industry explains, the main reason for the shortfall in HECO Companies' proposed Tier 1 PV rates is that the install costs the HECO Companies' model estimated for Tier 1 PV are lower than the actual costs established by the market. Id. ¶ 4. Mr. Duda confirmed this assessment by researching, compiling, and analyzing actual O'ahu PV building permit data for O'ahu PV projects in the Tier 1 range. Id. Based on the data, SA/HSEA proposes a reasonable upward adjustment of install costs and resulting FIT rate that better reflects the reality of the Hawai'i market in the Tier 1 range.

Initially, SA/HSEA support the HECO Companies' proposed rates for Tier 2 PV of \$0.189 or \$0.238 per kWh. Those rates resulted from discussions between SA/HSEA and the HECO Companies and other parties and industry expertise SA/HSEA provided on the Hawai'i market. Id. ¶ 5. The input from SA/HSEA included, most significantly, urging the provision of alternative rates based on the two options for the state tax credit, and advising the parties of the current drop in PV module costs (which

served to decrease the resultant FIT rate), as well as other suggested changes, all of which the HECO Companies adopted in producing their proposed Tier 2 PV rates. Id.

SA/HSEA also made recommendations for Tier 1, but because of time constraints the HECO Companies were not able to incorporate them in their proposal. Id. ¶ 6. This resulted in proposed rates for Tier 1 PV that are too low to be effective. Id. While many factors may contribute to this result, the most obvious and significant cause is the HECO Companies' estimated install costs are too low. Id. The HECO proposal uses a range of install costs at \$5.76 per watt to \$7.04 per watt, with an average of \$6.40 per watt. See HECO Companies' Letter to the Commission (January 7, 2010) at 7 ("HECO 1/7/10 letter"). Based on Hawai'i industry experience, this underestimates actual market costs. Duda Dec. ¶ 6.

To confirm this assessment, HSEA compiled Hawai'i market data on Tier 1 PV install costs. Id. ¶ 7; see Exh. A, attached hereto. Indeed, that size range encompasses most of the Hawai'i PV systems to date, and thus would provide most of the existing Hawai'i-specific data. Duda Dec. ¶ 7. As the best available source of install cost data on O'ahu, HSEA procured building permit data for O'ahu PV projects for the entire year of 2009. Id. The resulting dataset comprises 1,001 cases. Id. To determine installed cost of projects, Mr. Duda conducted substantial data inspection and cleaning. Id. For example, the most obvious limitation was the absence of system size information on all but 201 projects, and of the remaining 201, 15 were larger than 20 kW, leaving 185 systems less than the 20 kW Tier 1 maximum for which system size information exists. Id.

Attached hereto as Exhibit A is the full list of these data sorted by installed cost per watt. The most obvious sources of variation are the size of the system and whether or not the system is an upgrade to an existing system, in which case the costs would be lower because inverters may not be needed, mounting equipment costs are much lower, the need for labor on site is far lower, and other similar factors. Duda Dec. ¶ 8. The existence in this list of such “upgrade systems” has an unknown but substantial downward bias on average cost per watt within the dataset; in other words, the actual install cost for completely new systems would be higher. Id.

The median of the data series is \$7.78 per watt, and the mean is \$7.80, which is substantially above the average rate of \$6.40 per watt of the range used by the HECO Companies in determining their Tier 1 rates. Id. ¶ 9. These actual Hawai’i market data corroborate SA/HSEA’s experience and judgment that the proposed rates are below the market as a result of inaccurate install cost assumptions and estimations.

To correct these inaccuracies, and produce effective FIT rates for Tier 1 PV, SA/HSEA propose a reasonable upward adjustment of the install costs to \$7.10 per watt, which is the midpoint of the \$6.40 figure that the HECO Companies estimated and the \$7.80 figure contained in the actual market data. The install cost of \$7.10 per watt produces a levelized cost of energy (“LCOE”) and FIT rate of \$0.297 or \$0.254 per KWh based on the 24.5 and 35 percent state tax credits, respectively. Id. ¶ 10. Attached hereto as Exhibit B is the worksheet from the HECO Companies’ model reflecting SA/HSEA’s proposed revised calculations of rates for Tier 1 PV.

This compromise recognizes and balances several factors. As stated, the market data underestimates the actual install cost of new systems. The data is concentrated towards the lower end (less than 5 kW) of Tier 1, where install costs per watt are higher; yet, because of the substantial basic fixed costs of PV projects present in even the smallest PV projects, the difference in install costs between the low and high end of Tier 1 is substantially less than the difference between the low and high end of Tier 2. Id. ¶ 11. Although the HECO Companies focus exclusively on the highest point of the size range within the tiers, with the implication that any smaller project is suboptimal and unfair to ratepayers, SA/HSEA submit that the public interest supports a full range of project diversity and market choice and a proper balance somewhere between the low and high end of the tiers.

The ultimate result of the HECO proposal's unduly low Tier 1 PV rates is that projects in the lower range of Tier 1 would be rendered all but unfeasible, and even larger projects up to the maximum size for Tier 1 would be questionable. Id. ¶ 12. This would disproportionately hurt homeowners, who fall within the lower range of Tier 1, and effectively exclude them from the FIT program. Id. See also FIT 9/25/09 D&O at 45, 57 (expressing the "inten[t] to include residential and small commercial projects" in Tier 1 and desire to "ensure that the FIT, in conjunction with net energy metering, supports small commercial and residential projects").

II. THE SOLAR ENERGY FIT RATES MUST ACCOUNT FOR AND ALLOW USE OF THE REFUNDABLE, 24.5 PERCENT STATE TAX CREDIT

SA/HSEA support the HECO proposed tariffs' inclusion of two alternate FIT rates for solar energy projects depending on which state Renewable Energy Technologies Income Tax Credit ("RETITC") the particular project uses. See, e.g., id. § G.2. See also FIT 9/25/09 D&O at 62-63 (agreeing that tax credits should be included in project development costs used to calculate FIT rates). The RETITC statute, Haw. Rev. Stat. § 235-12.5, currently provides solar energy systems two alternate credits: (1) the non-refundable, 35 percent credit, id. § 235-12.5(a)(1); and (2) the refundable 24.5 percent credit (35 percent reduced by 30 percent), id. § 235-125(a)(g). As explained below, to succeed in its purpose of encouraging solar energy projects, the FITs must account for both credits -- particularly the 24.5 percent refundable credit, which the legislature established expressly to provide a necessary incentive for solar energy development.

The HECO proposed tariffs offer alternate rates for solar FIT projects based on both RETITCs. The accompanying cover letter, however, states that the HECO Companies "would support including a 24.5 percent refundable credit rate," "[t]o the extent that parties in this proceeding are able to provide record support to the Commission for the use of the 24.5 percent refundable credit, including but not limited to identification of Hawaii specific examples of this situation." HECO 1/7/10 letter at 5.

Initially, the HECO Companies, for their part, do not provide support for use of the 35 percent non-refundable RETITC, except for the statement that “[t]he 35% tax credit results in lower costs to ratepayers and therefore the [HECO Companies] have assumed for each relevant technology full monetization of this tax credit.” Id. This assumption of full monetization of the tax credit, of course, does not address which of the two legally established RETITCs are monetized.

SA/HSEA emphasizes that definitive support for use of both credits lies in the letter and intent of the RETITC law itself. The legislature amended the law to provide the option of the refundable credit at 24.5 percent. See Act 154, 2009 Haw. Sess. Laws 459, 461. The legislature did not pass Act 154 as an empty gesture: “[w]e cannot presume that the legislature intended to enact an unnecessary amendment.”

Richardson v. City and County of Honolulu, 76 Hawai‘i 46, 73, 868 P.2d 1193, 1221 (1994). While the enactment of Act 154 alone is proof enough, the legislative history repeatedly makes clear that the legislature found an actual need for the refundable credit and intended its actual use. This includes:

- “find[ing] that, as currently drafted, the Hawaii [RETITC] has very limited appeal as a financial incentive. This measure expands the class of investors who can use the credit, thereby attracting much more investment capital to renewable energy in Hawaii.” Stand. Comm. Rep. No. 254 at 1.¹
- declaring the purpose “to encourage capital investment in renewable energy technologies by making the investment more attractive to a wider range of investors who would be able to make use of the [RETITC],” and expressing the intent “to allow most taxpayers to elect

¹ The 2009 legislative committee reports have not yet been published in the bound journals, but are available at the legislature’s website and are attached hereto as Exhibit C.

refundable or nonrefundable treatment of the tax credit.” Stand. Comm. Rep. No. 1286 at 2.

- declaring the purpose “to promote the use of, and investment in, renewable energy resources by amending the [RETITC] to encourage the use of solar and wind energy systems” Stand. Comm. Rep. No. 1723 at 1; Conf. Comm. Rep. No. 98 at 1.
- “find[ing] that making this tax credit refundable at a reduced level will enable the solar industry in Hawaii to expand its role as an engine of economic stimulus and job creation in the current recessionary environment. . . . At present, the solar industry is responsible for approximately two thousand jobs in Hawaii, but the market is artificially capped by inconsistencies in the tax code that make it virtually impossible for most would-be investors to use the credit. Without access to this tax credit, solar projects in Hawaii are not financially viable.” Conf. Comm. Rep. No. 98 at 1-2.

Failing to account for the 24.5 percent refundable RETITC in the FITs would not only disregard the legislature’s express findings on the actual need and use for the credit, but would effectively nullify the legislature’s enactment of Act 154. None of the parties or the Commission are in a position to contradict this legislative intent; at the very least, the burden of proof should fall on those proposing to vary from the law, rather than vice versa.

Indeed, it bears noting that the HECO Companies supported the enactment of the refundable RETITC, explaining that it “will make it more attractive for more entities to take advantage of this benefit thus creating more jobs and helping stimulate the sluggish economy.” Testimony of HECO Companies to Sen. Comm. on Energy & Env’t (Feb. 10, 2009), attached hereto as Exh. D. This opinion should be sufficiently convincing for the HECO Companies, if not the Commission.

In any event, SA/HSEA is able to provide the further support HECO lacks, confirming that the reality of the Hawai'i market fully justifies the enactment of the 24.5 percent refundable RETITC and the legislature's findings and purpose. Attached hereto are several declarations from experts intimately involved in the Hawai'i solar energy market, establishing that the 24.5 percent refundable credit is critical to enabling solar energy development in Hawai'i. See Duda Dec.; Cronin Dec.; Gilbert Dec. See also FIT 9/25/09 D&O at 84 (giving preference to "Hawai'i-specific cost and performance data"). In particular:

- The refundable RETITC is a "critical linchpin" and "crucial tool" for financing solar energy projects in this state. Cronin Dec. ¶ 2; Gilbert Dec. ¶ 2
- The non-refundable RETITC is "nearly useless" to investors and "in almost all cases provides them no meaningful incentive to invest in such projects in Hawai'i," and resulted in "common and widespread" difficulties, including failed projects and businesses, and a "poor market for solar projects in Hawai'i compared to the potential of that market." Cronin Dec. ¶¶ 4-7; Gilbert Dec. ¶¶ 3-4.
- The FIT must "incorporate the refundable state tax credit to enable the financing necessary to drive the development of solar energy resources in Hawai'i." Cronin Dec. ¶ 9. "Otherwise, the proven limitations and failures of the non-refundable credit in the Hawai'i market will simply repeat themselves and in all probability cause the [FIT] to largely fail as well." Gilbert Dec. ¶ 6.

III. THE HECO PROPOSAL'S OPAQUE AND OVERLY BURDENSOME NON-RATE TERMS CONTRADICT FIT PRINCIPLES.

Apart from the rate terms, SA/HSEA have concerns about various non-rate provisions in HECO's proposed tariff and accompanying documents. The provisions of most concern to SA/HSEA, in fact, directly relate back to issue of just and reasonable

rates; this refers, of course, to the continued lack of transparency surrounding, in particular, (1) curtailment and (2) interconnection costs. SA/HSEA cannot emphasize enough that its proposed FIT rates, including its support of the proposed Tier 2 PV rates and proposed revisions to the Tier 1 PV rates are basic, “bare bones”-type figures that will work in the Hawai‘i market only if the HECO Companies do not impose additional costs via the interconnection process and rules, reliability standards, or curtailment. While most indications appear to support these basic assumptions, substantial uncertainty remains. Moreover, instead of resolving or minimizing the uncertainty, the HECO proposal in certain instances affirmatively creates uncertainty. Such uncertainty, of course, defeats the very purpose of the FIT.

Curtailment

In particular, SA/HSEA object to the entire § 6 of the HECO Companies’ proposed “Schedule FIT Tier 1 and Tier 2 Agreement” (“FIT Agreement”), entitled “Continuity of Service” and dealing with curtailment. SA/HSEA note that this provision is a new addition by the HECO Companies and thus has never been discussed by the parties, which likely contributed to its many problems.

- For example, the initial paragraph states that the section shall apply to all facilities above the trigger for Supervisory Control and Data Acquisition (“SCADA”), which is now 1 MW but now proposed to be decreased to .5 MW, “and all other Facilities, regardless of size, where it is deemed, at the Company’s sole discretion, that an alternate means of curtailment is technically feasible.” (Emphasis added.)
- Section 6(a) similarly grants the HECO Companies virtually limitless ability to curtail energy deliveries, including “in any situation that the Company System Operator determines, at his or her sole discretion, could place in jeopardy system reliability.” (Emphasis added.)

- Section 6(b) also grants the HECO Companies the ability to decline energy purchases “during any period which, due to operational circumstances, purchases from the Seller will result in costs greater than those which the Company would incur if it did not make those purchases, but instead generated an equivalent amount of energy itself.” Such language is completely opposite to the definition of the FIT, and calls into question the reason for creating a FIT in the first place. The provision further states that it is not intended to allow curtailment based on economic dispatch, but this simply adds to the confusion and uncertainty.
- Finally, Section 6(f) leaves the methodology for curtailment open and undefined.

These curtailment provisions are particularly oppressive given that FIT energy sellers are prohibited from selling any unused energy to third parties, and the HECO Companies have no “take or pay” obligation to the sellers. See id. § 2(b), (g). The HECO Companies should not be able to “have their cake and eat it too,” at the sellers’ expense. In line with the fundamental principles of the FIT, as well as the Commission’s recognition that Tiers 1 and 2 were designed to include projects of manageable sizes, the FIT should make clear that projects in Tiers 1 and 2 are not subject to curtailment.

Problem of “Gaming” the Rate/Tier Structure

According to the HECO Companies, the last paragraph of the section B of the “Schedule FIT Tier 1 and Tier 2” (“Schedule FIT”) seeks to prevent developers from “gaming” the system by splitting a large system into a series of smaller systems for the purpose of receiving higher FIT rates from lower tiers. SA/HSEA shares the HECO Companies’ concerns about this problem, but has also pointed out other problems with the Companies’ proposed solution of limiting FIT projects to one per TMK. A number

of legitimate cases exist where a single TMK could house more than one “legitimate” project, examples of which we provided. For example, a tenant with a long term lease that includes control of a portion of the roof may install a PV system, and the landlord may install a PV system on the remaining portions. In this case, SA/HSEA argued that no public or administrative purpose would be served by limiting either the landlord or the tenant from building their project. SA/HSEA further noted that there are a number of situations where multiple net metered systems with different meter holders exist on a single TMK.

As a result of these conversations, SA/HSEA expected the tariff agreement to include language that addressed both the potential gaming and the need to allow legitimate uses of the FIT on a single TMK. The proposed language, however, preventing multiple projects “except with written consent of the company, which consent shall not be unreasonably withheld,” is not an appropriate solution to the potential for exclusion of legitimate projects because it cedes too much discretion to the utilities. This issue could be sorted out based on realities in the Hawai‘i marketplace, and SA/HSEA, as experienced operators in this marketplace, would be available for discussions with the HECO Companies to improve this provision.

Timing of Provision of Hawaii Tax Documentation

SA/HSEA agree with comments by Sopogy that the requirement in § G(2) of the Schedule FIT that the seller provide tax filings indicating whether the state RETITC will be used at the 35 or 24.5 percent level before the commercial operation date would be impossible. This is because tax credits can only be claimed after a project is “placed in

service” according to a specific definition by the IRS and the state Department of Taxation. One element of this definition is commercial operation. As a result, the HECO Companies proposal asks ex ante for a document that only exists ex post relative to the date of commercial operation.

SA/HSEA recommend that a more appropriate proposal would require a developer to state their planned level of tax credit access for the purpose of rate determination, which could later be verified by filing the tax forms after operation has begun along with the other annual filings required under the Commission’s September 25, 2009 D&O in this docket. SA/HSEA believe this would satisfy the Commission’s verification requirements as expressed on page 89 of the D&O.

Service Charge

SA/HSEA believe the proposed “service charge” of \$25 per month in § L(4) of the Schedule Fit is not appropriate for Tier 1 customers. Residential customers may be left with very little net value from FIT projects with a service charge at this level. SA/HSEA note that the cost differential between the proposed \$25 charge and the monthly service charge for “R” service class meters charge has not been explained or justified. We also note that the HECO Companies said in IR Responses that they would work with the Independent Observer (“IO”) to establish the appropriate service charge, but this does not seem to have occurred. SA/HSEA understand that this may be because the IO has not yet been approved by the Commission, but wish to continue to flag the issue for the IO once the contract is finalized.

Dual Participation

In § M of the Schedule FIT, the HECO Companies propose language prohibiting dual participation in FIT and “interruptible or NEM Programs.” SA/HSEA noted concerns and raised questions about this our IRs. The HECO Companies responded that they would specify conditions under which customers could participate in FIT and other programs. It appears that such terms have been clarified to “never” in the HECO proposal.

SA/HSEA believe that this is at odds with the ultimate public purpose of the FIT of ensuring the integration of more renewable energy onto the HECO Companies’ grids. It further appears to be a move to force NEM customer generators who would like to expand their systems to take advantage of the FIT to forsake their NEM contracts, an idea that the Commission rejected in the September 25, 2009 D&O. SA/HSEA can see no technical reason why a single customer could not have two accounts with the utility, one under NEM, for instance, and a second under FIT.

Company Right to Terminate If Seller Makes General Assignment or Enters Involuntary Bankruptcy

Section 10 of the proposed FIT Agreement grants the HECO Companies the right to terminate contracts in the event that the seller makes a general assignment or enters involuntary bankruptcy. SA/HSEA submits that (1) neither circumstance justifies the termination of the contract, and notes that (2) these provisions will substantially diminish interest in the FIT project by investors. PV projects require minimal maintenance activity and expenditures, and as such their viability in the event of

financial challenges to the project owner is unlikely to have any impact on the ability of the project to deliver power to the utility under the terms of the contract.

Meanwhile, the inability to monetize an asset such as an FIT contract to an entity that is in financial difficulty will actually make it more difficult for such an entity to engineer a soft landing for itself by disposing of assets and scaling back to core activities. These circumstances are well known to investors, and the inability of the developer and owner to continue their FIT contracts in times of financial circumstances are a source of risk that will substantially affect project finance terms and availability.

As a side note, SA/HSEA point out that this proposal makes value that is owed to creditors essentially evaporate when a FIT project owner encounters financial difficulties. As such, it may not be in the broader public interest or may be against public policy.

Providing Financial Records

Regarding § 14 of the proposed FIT Agreement, SA/HSEA is not clear whether the proposal requiring sellers to provide financial records to “Company or its independent auditor” for purpose of meeting accounting requirements is intended to implement the Commission’s reporting requirements as laid out in the September 25, 2009 D&O or introduce an additional level of reporting. In the event of the latter, SA/HSEA believe it is redundant with the Commission’s requirements. The intent of this provision is unclear and needs further explanation and justification.

Arbitration Only Provision

SA/HSEA submit that although many PPA contracts have arbitration only clauses, it is not appropriate for the FIT to preclude relief from the Commission in the event of disputes, particularly in the initial, formative stages of the FIT program.

Unspecified Interconnection Costs

SA/HSEA have maintained in this docket that the utility should pay for interconnection costs associated with interconnecting Tier 1 and 2 facilities (but not that developers be able to unreasonably site projects so that these costs are inordinately high relative to the benefits of the project). The HECO Companies' proposed Appendix B, entitled "Interconnection Requirements" includes as costs to be borne by the developer: (1) unspecified company-owned interconnection facilities; (2) engineering costs for developing those facilities, and reviewing seller's facilities; and (3) reviewing verification testing. As stated above, these costs are open-ended and unclear and, thus, create additional uncertainties and impediments to development of otherwise viable FIT projects. SA/HSEA, therefore, maintain that the HECO Companies should bear and recoup these costs in the normal course of business. The same point applies to the proposed requirement that the seller reimburse Company for any costs of operating, maintaining, or testing Company-Owned Interconnection Facilities.

Limitation on Sale to Others

SA/HSEA do not support the Companies proposal to prohibit the FIT sellers from selling energy to others even in the event that their production is being curtailed.

There is an obvious case for requiring sellers to provide all power available to the utility in the event that the utility pays for all of it. There may even be an interest in requiring all sales to third parties to be immediately curtailable so that the utility always has access to the seller's plant as a generation source. However, the idea that a seller can be curtailed and not put power generated but not wanted by the utility to an alternative use is onerous and seems intended to limit competition with the utility for purposes such as the charging of batteries for electric vehicles. These alternatives are limited now but will become increasingly important during the upcoming 20 years.

General Length and Complexity of Documents

In general, SA/HSEA observe that the standard offer contract attached to the FIT is overly long, redundant, and not accessible or transparent. Such a document would hardly facilitate broad public participation in the FIT program; the document should instead be kept to the bare minimum terms and written in as much plain English as possible. In this regard, SA/HSEA prefer the proposed tariff documents of the state Department of Business, Economic Development and Tourism and Zero Emissions Leasing LLC, which adhere to and focus on the Commission's instructions in its D&O and add minimal surplusage. See FIT 9/25/09 D&O (seeking "to prevent unduly burdening the owners of small projects").

IV. THE HECO COMPANIES' PROPOSED RULE 14H REVISIONS CONTRADICT FIT PRINCIPLES AND THREATEN TO NULLIFY THE FIT

SA/HSEA also have grave concerns regarding the HECO Companies' proposed Rule 14H modifications. The original intent of the Rule 14H modifications, as was

widely communicated and understood, was to increase the grid penetration threshold for interconnection studies from the current 10 percent to 15 percent, consistent with the specific direction of the Energy Agreement between the HECO Companies and the State. Based on their Rule 14H proposal, however, the HECO Companies apparently re-envision this as open season for imposing any and all desired restrictions on renewable penetration, many of which stand to make matters even worse than present.

The proposed Rule 14H amendments directly bear on this docket, specifically the pending issues of interconnection and reliability standards that the parties in this docket are supposed to be discussing in a collaborative process, with the assistance of the IO. To further the purposes of the FIT, these efforts should in principle produce a more transparent and definitive set of design and cost parameters for FIT participants. Yet, with their proposed Rule 14 modifications (and various proposed terms in this docket), the HECO Companies are unilaterally heading in the other direction: seeking to carve out virtually unlimited, sole discretion to impose additional interconnection costs and delays, as well as curtailment, on systems of any size. This threatens to nullify not only the ongoing process in this FIT docket, but the viability of the FIT altogether. Accordingly, to preserve the integrity of the ongoing deliberations and underlying principles in this proceeding, SA/HSEA raise these concerns regarding the proposed Rule 14H Amendment and respectfully request that the Commission stay the operation of most of these proposed revisions -- except the increase of the grid penetration level to 15 percent of peak load, which the Energy Agreement has already

contemplated -- and consolidate the matter with the ongoing deliberations and investigation herein.

Initially, throughout the duration of this and other related dockets, SA/HSEA and other parties have repeatedly asked the HECO Companies for details on any proposed changes to Rule 14H, given its direct impact and application in these contexts. Yet, prior to the filing several weeks ago, the parties had no notice or discussion of most of the proposed changes, which number in the dozens. Nonetheless, in the limited time allowed, SA/HSEA has identified numerous points of concern, the most troubling of which include:

- The proposed change on page 34A-2(d), deleting language that would allow an interconnection agreement to be modified to make both the customer and third party owner or operators of a distributed generation ("DG") system parties to an interconnection agreement. This would eliminate the option of third-party financed PPAs for systems interconnected under NEM contracts and standard interconnection agreements, such as those that the State of Hawaii has committed to under its RFP process at the DOE, Oahu Community Colleges, and several capital area facilities.
- The proposed change on page 34b-8(d) and 34D-6(a), imposing an additional limitation of 33 percent of the feeder minimum kW load during the period when the proposed generation is available. This proposal ostensibly would include days or times of extreme low load, and could thus eliminate any gains from the increase of the limitation of 10 percent of maximum load to 15 percent.
- The proposed change to second "Whereas" clause on page 34C-1, eliminating the ability of third parties to own generating facilities under standard interconnection agreements. As noted in the bullet point above referring to page 34A-2(d), this would have a huge detrimental effect on the market for renewable projects in which a third party seeks to use the roof of a facility to sell power to a power user occupying the facility. In effect, it would eliminate options for building owners/users and force these roofs into the FIT, or perhaps PV Host, channels by eliminating third-party financing for standard interconnect contracts.

- The proposed change on page 34D-7(b), including system grid interconnection limits as a factor in determining the degree of technical review required for a request for interconnection, and the extent to which an additional technical study will be needed. This proposed change adds a wholly new trigger for interconnection studies not previously identified in either discussions or filings among the interveners in this and related dockets and the HECO Companies. SA/HSEA has argued elsewhere that the need to perform these studies in many contexts function as a de facto hard cap rather than as a mere “trigger” because of the direct cost, the uncertain timing, and the uncertain end-of study costs, all of which cripple the investment appeal of such projects. SA/HSEA further note that the HECO Companies argue for the appropriateness of this new study trigger criterion on the basis of the Commission’s direction to the HECO Companies to file proposed reliability standards in the September 25, 2009 D&O. SA/HSEA do not read the D&O to even vaguely suggest the need for system wide DG caps or triggers

* * * * *

DATED: Honolulu, Hawai‘i, January 21, 2010.



ISAAC H. MORIWAKE
DAVID L. HENKIN
EARTHJUSTICE
Attorneys for
HAWAII SOLAR ENERGY
ASSOCIATION

Respectfully submitted.

DATED: Honolulu, Hawaii, 1/31/2010 ~~2009.~~



RILEY SAITO

for The Solar Alliance

BEFORE THE PUBLIC UTILITIES COMMISSION
OF THE STATE OF HAWAII

In the Matter of)	
)	
PUBLIC UTILITIES COMMISSION)	Docket No. 2008-0273
)	
Instituting a Proceeding to Investigate)	
The Implementation of Feed-in Tariffs.)	
)	

DECLARATION OF MARK DUDA

1. I am a founding member of Distributed Energy Partners, a Hawai'i-based renewable energy firm focused on the commercial, non-profit and government markets, and RevoluSun, a Hawai'i-based residential solar company. I was previously a partner in Suntech Hawaii, which grew its sales from \$3 to \$30 million in the year I spent at the company. In 2009, I was named Hawai'i Venture Capital Association's Cleantech Entrepreneur of the Year and one of Pacific Business News's "40 Under 40" young business leaders; and in January 2010, I received the Governor of the State of Hawai'i's Innovation Award for January 2010 in recognition of my contributions to the State's renewable energy industry. I am the President of HSEA, a Member of the Hawai'i Energy Policy Forum and Co-Chair of its Renewable Energy Working Group, a Board Member of the Hawai'i PV Coalition, a Member of the Steering Committee for Energy Efficiency of the Hawai'i Clean Energy Initiative, and member of the Hawai'i Department of Labor and Industrial Relation's Steering Committee for Renewable Energy Workforce Development.

2. My profession involves working in the Hawai'i solar energy market on a daily basis. I have participated in the development of dozens of solar energy projects from start to finish throughout the Hawaiian Islands, ranging from residential rooftops to the largest roof-mounted photovoltaic ("PV") project in the state and the second largest ground mounted project in the state. I have first-hand understanding of what it takes for PV projects to work in the Hawai'i market. My role as HSEA President also provides me with a direct, continual source of insight and updates on the Hawai'i solar industry and market. HSEA's membership includes installers, distributors, manufacturers, and financiers of solar energy systems, most of which are Hawai'i based, owned and operated. HSEA members install the majority of solar systems in the Hawaiian Islands. We have decades of collective experience specifically in the Hawai'i solar energy market and are uniquely and intimately familiar with how this market works. In short, we are the companies actually implementing the projects the FIT seeks to promote, and who must work with the real-world ramifications of the decisions in this docket.

3. I provide this declaration to establish for the record several important points regarding the Hawaiian Electric Company's, Hawaii Electric Light Company, Inc., and Maui Electric Company's ("HECO Companies") proposed tariffs ("HECO proposal"). First, the proposed rates for Tier 1 PV need to be somewhat increased -- from \$0.274 per kWh to \$0.297 per kWh assuming use of the refundable, 24.5 percent state "Renewable Energy Technologies Income Tax Credit" ("RETITC") -- to provide an effective and successful market incentive for PV projects within that size category in

Hawai'i. Second, the FIT rates for PV must take into account and allow the use of the refundable, 24.5 percent RETITC to encourage meaningful development of PV projects in Hawai'i.

The HECO Companies' Proposed Tier 1 PV Rates Are Too Low to Move the PV Market in Hawai'i

4. Based on our extensive experience in the Hawai'i market, the rates for Tier 1 PV need to be increased from the HECO Companies' proposed \$0.274 or \$0.218 per kWh (based on the 24.5 and 35 percent state tax credits, respectively) to \$0.297 or \$0.254 per kWh in order to be effective: that is, to provide an effective market incentive for this size class that will make projects viable, move the market, and encourage full subscription of the tariff over the first phase, at a reasonable cost to ratepayers. As explained below, the main reason for this shortfall is that the install costs the HECO Companies' model estimated for Tier 1 PV are lower than the actual costs established by the market. I confirmed this assessment by researching, compiling, and analyzing actual O'ahu PV building permit data for O'ahu PV projects in the Tier 1 range. Based on the data, SA/HSEA proposes a reasonable upward adjustment of install costs and resulting FIT rate that better reflects the reality of the Hawai'i market in the Tier 1 range.

5. Initially, I note that SA/HSEA support the HECO Companies' proposed rates for Tier 2 PV of \$0.189 or \$0.238 per kWh. Indeed, those rates resulted from discussions between SA/HSEA and the HECO Companies and other parties and industry expertise SA/HSEA provided on the Hawai'i market. This included, most

significantly, recommending alternative rates based on the two options for the state tax credit, and advising the parties of the current drop in PV module costs (which served to decrease the resultant FIT rate), as well as other suggested changes, all of which the HECO Companies adopted in producing their proposed Tier 2 PV rates.

6. Because of time constraints, and through no fault of any party, however, the HECO Companies were not able to include in their proposal SA/HSEA's similar recommendations for Tier 1. This resulted in proposed rates for Tier 1 PV that are too low to be effective. While many factors may contribute to this result, the most obvious and significant cause is the HECO Companies' estimated install costs are too low. The HECO proposal uses a range of install costs at \$5.76 per watt to \$7.04 per watt, with an average of \$6.40 per watt. Based on Hawai'i industry experience, this underestimates actual market costs.

7. To confirm this assessment, HSEA compiled Hawai'i market data on Tier 1 PV install costs. Indeed, that size range encompasses most of the Hawai'i PV systems to date, and thus would provide most of the existing Hawai'i data. As the best available source of install cost data on O'ahu, HSEA procured building permit data for O'ahu PV projects for the entire year of 2009. The resulting dataset comprises 1,001 cases. *To determine installed cost of projects, substantial data inspection and cleaning was necessary.* The most obvious limitation was the absence of system size information on all but 201 projects. Of the remaining 201, 15 were larger than 20 kW, leaving 185 systems less than 20 kW for which system size information exists.

8. Attached hereto as *Exhibit A* is a true and correct copy of the full list of these data I prepared, sorted by installed cost per watt. The list still contains a number of inconsistencies. The most obvious sources of variation are the size of the system and whether or not the system is an upgrade to an existing system, in which case the costs would be lower because inverters may not be needed, mounting equipment costs are much lower, the need for labor on site is far lower, etc. The existence in this list of such “upgrade systems” has an unknown but substantial downward bias on average cost per watt within the dataset; in other words, the actual install cost for completely new systems would be higher.

9. The median of the data series is \$7.78 per watt, and the mean is \$7.80, which is substantially above the average rate of \$6.40 per watt of the range used by the HECO Companies in determining their Tier 1 rates. These actual Hawai’i market data corroborate SA/HSEA’s experience and judgment that the proposed rates are below the market as a result of inaccurate install cost assumptions and estimations.

10. To correct these inaccuracies, and produce effective FIT rates for Tier 1 PV, SA/HSEA propose a reasonable upward adjustment of the install costs to \$7.10 per watt, which is the midpoint of the \$6.40 figure that the HECO Companies estimated and the \$7.80 figure contained in the actual market data. The install cost of \$7.10 per watt produces a LCOE and FIT rate of \$0.297 or \$0.254 per KWh based on the 24.5 and 35 percent state tax credits, respectively. Attached hereto as *Exhibit B* is a true and correct copy of the worksheet from the HECO Companies’ model reflecting SA/HSEA’s proposed revised calculations of rates for Tier 1 PV.

11. This compromise recognizes and balances several factors. As stated, the market data underestimates the actual install cost of new systems. The data is concentrated towards the lower end (less than 5 kW) of Tier 1, where install costs per watt are higher; yet, because of the substantial basic fixed costs of PV projects present in even the smallest PV projects, the difference in install costs between the low and high end of Tier 1 is substantially less than the difference between the low and high end of Tier 2. Although the HECO Companies focus exclusively on the highest point of the size range within the tiers, with the implication that any smaller project is suboptimal and unfair to ratepayers, we submit the public interest supports a full range of project diversity and market choice and a proper balance somewhere between the low and high end of the tiers.

12. The ultimate result of the HECO proposal's unduly low Tier 1 PV rates is that projects in the lower range of Tier 1 would be rendered all but unfeasible, and even larger projects up to the maximum size for Tier 1 would be questionable. This would disproportionately hurt homeowners, who fall within the lower range of Tier 1, and effectively exclude them from the FIT program.

13. Finally, notwithstanding their support for the HECO proposal's Tier 2 PV rates and relatively modest modifications of the Tier 1 PV rates, SA/HSEA emphasize several concerns. First, while the modified Black and Veatch model HECO used may, under certain conditions, generate accurate estimates of appropriate rates, it cannot completely substitute for knowledge of "on the ground" conditions in the state. Based on our review, the model needs to be further refined and validated in various respects

to reflect more accurately the realities of the Hawai'i market. This effort and level of calibration, however, will require more time and an ongoing process, in which SA/HSEA is willing and hopeful to participate.

14. Second, the adequacy of the PV rates for both Tiers 1 and 2 hinges on several fundamental assumptions of: (1) negligible interconnection costs, including costs of delays in the interconnection process; and (2) no curtailment. From most indications, the HECO Companies' calculations of Tier 1 and 2 rates appear to rest on these assumptions; however, this remains not entirely clear. Changes in these two factors, however, would fundamentally alter this balance and calculus and necessitate increases in the rates. At the very minimum, these assumptions on interconnection costs and curtailment must be made clear and explicit at the outset, in order to promote public transparency and confidence in the market for FIT projects.

FIT Rates for Solar Energy Systems Must Account for Use of the Refundable State Tax Credit.

15. Based on my knowledge and understanding of the Hawai'i solar energy market, the non-refundable, 35 percent state "Renewable Energy Technologies Income Tax Credit" ("RETITC") in Haw. Rev. Stat. § 235-12.5 has very limited or no usefulness for third-party investors in solar-powered systems in Hawai'i because it fails to produce the cash flow necessary to attract investment. Rather, most or all investors will use the refundable 24.5 percent RETITC. Thus, in order for a feed-in tariff to succeed in its purpose of encouraging investment in PV in Hawai'i, it must provide rates based on the 24.5 percent refundable RETITC.

16. In 2008, there was no market for third-party financed PV projects in Hawai'i (outside of limited pool of solar tax leases offered only by Bank of Hawaii and Central Pacific Bank) -- precisely because the non-refundable, 35 percent RETTTC could not be monetized by investors. The problem was severe enough that all or virtually all of the third-party PPAs in Hawaii in 2008 amounted to ten projects undertaken by the State of Hawai'i at rates well above grid power costs, reflecting that 35 percent credit could not be monetized and was ignored in calculating per kWh pricing. The most prominent example of the failure of the non-refundable credit was the highly publicized Hawai'i Department of Transportation, Airports Division RFP process that eventually collapsed due to inability to monetize the 35 percent credit. Numerous other failures occurred, in which developers were forced, at best, to substantially downsize their proposals and absorb losses, or more often abandon the proposals altogether.

17. This fundamental market failure directly resulted in the legislature passing Act 154 in 2009, which provides a second option for monetizing the state tax credit at the lower 24.5 percent level that is intended to appeal to third-party investors. I was directly involved in the legislative process for this bill (S.B. 464) as a representative of the solar industry, providing written and oral testimony for all the hearings, and discussing the measure with legislators and other stakeholders throughout the session.

18. Attached hereto as Exhibit C are true and correct copies of legislative committee reports on S.B. 464, which are available at the legislature's website. The

reports express the purpose and need for the refundable RETITC of encouraging investment in renewable energy and enabling the financing of solar projects in Hawai'i.

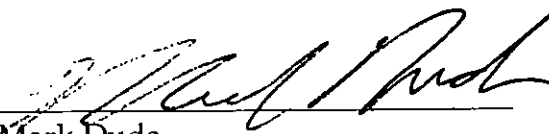
19. Attached hereto as Exhibit D is a true and correct copy of the testimony of the HECO Companies' in favor of S.B. 464, which is available at the legislature's website. The HECO Companies expressed support for S.B. 464 consistently throughout the session.

20. The enactment of the refundable RETITC has finally begun to move the Hawai'i privately provided PPA market. The refundable credit is the key that has released various government and non-profit sector RFPs including those by the Hawai'i Department of Education, the O'ahu Community Colleges, Maui Community College, and Kamehameha Schools. I would note that the refundable credit took effect only in the middle of 2009, and because project development timelines on third-party financed projects are typically longer than the period since then, the market response has only just begun. Nonetheless, this does not diminish the consistent understanding among those familiar with the market that the refundable credit is necessary to make third-party financing of solar energy projects viable.

21. In sum, the reality of Hawai'i's solar market is that the Hawai'i feed-in tariff for PV must include rates based on the refundable, 24.5 percent RETITC. Otherwise, the feed-in tariff will not, and cannot, succeed in its goal of encouraging investment in PV.

I declare under penalty of perjury under the laws of the United States of America that the foregoing is true and correct.

Dated: January 21, 2010, at Honolulu, Hawai'i.


Mark Duda

BEFORE THE PUBLIC UTILITIES COMMISSION
OF THE STATE OF HAWAII

In the Matter of)	
)	
PUBLIC UTILITIES COMMISSION)	Docket No. 2008-0273
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_____)	

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reports express the purpose and need for the refundable RETITC of encouraging investment in renewable energy and enabling the financing of solar projects in Hawai'i.

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21. In sum, the reality of Hawai'i's solar market is that the Hawai'i feed-in tariff for PV must include rates based on the refundable, 24.5 percent RETITC. Otherwise, the feed-in tariff will not, and cannot, succeed in its goal of encouraging investment in PV.

I declare under penalty of perjury under the laws of the United States of America that the foregoing is true and correct.

Dated: January 21, 2010, at Honolulu, Hawai'i.


Mark Duda

EXHIBIT A

	cost/watt	accepted value	permit #	system size (kW)
\$	4.89	\$2,200	644477	0.45
\$	9.60	\$8,404	643639	0.88
\$	10.02	\$8,770	644482	0.88
\$	9.02	\$8,300	648648	0.92
\$	7.98	\$8,377	648340	1.05
\$	8.08	\$8,482	642577	1.05
\$	11.43	\$12,000	648675	1.05
\$	14.31	\$15,026	647861	1.05
\$	10.80	\$12,400	648879	1.17
\$	10.83	\$13,000	640901	1.20
\$	11.25	\$13,500	642148	1.20
\$	11.87	\$14,000	641926	1.20
\$	11.87	\$14,000	641968	1.20
\$	11.87	\$14,000	642463	1.20
\$	10.81	\$13,000	639775	1.23
\$	4.44	\$6,000	641194	1.35
\$	7.41	\$10,000	648780	1.35
\$	8.89	\$12,000	641025	1.35
\$	9.83	\$13,000	639830	1.35
\$	9.83	\$13,000	646064	1.35
\$	11.11	\$15,000	638053	1.35
\$	7.25	\$10,000	649569	1.38
\$	8.70	\$12,000	648768	1.38
\$	10.87	\$15,000	649206	1.38
\$	8.08	\$11,309	642383	1.40
\$	8.25	\$11,545	642386	1.40
\$	10.29	\$14,408	650354	1.40
\$	10.88	\$15,230	640581	1.40
\$	5.40	\$8,500	641036	1.58
\$	6.35	\$10,000	643946	1.58
\$	7.62	\$12,000	646727	1.58
\$	8.89	\$14,000	649204	1.58
\$	8.82	\$15,000	647935	1.70
\$	7.56	\$13,000	640619	1.72
\$	7.56	\$13,000	650737	1.72
\$	8.14	\$14,000	650282	1.72
\$	6.79	\$11,882	646862	1.75
\$	6.86	\$12,000	640245	1.75
\$	6.86	\$12,000	641976	1.75
\$	7.14	\$12,500	639831	1.75
\$	8.08	\$14,137	643640	1.75
\$	8.28	\$14,503	646754	1.75
\$	8.53	\$14,922	643894	1.75
\$	8.57	\$15,000	643954	1.75
\$	8.17	\$14,346	642576	1.76
\$	5.56	\$10,000	647303	1.80
\$	7.78	\$14,000	638369	1.80
\$	7.78	\$14,000	642501	1.80
\$	8.33	\$15,000	647928	1.80
\$	8.89	\$16,000	637287	1.80
\$	8.74	\$16,000	641183	1.83
\$	8.52	\$12,000	649385	1.84
\$	7.55	\$13,899	648374	1.84
\$	8.15	\$15,000	646398	1.84
\$	5.29	\$10,000	640642	1.89
\$	7.63	\$14,424	647860	1.89
\$	8.47	\$16,000	650289	1.89
\$	5.71	\$11,000	640640	1.93
\$	6.23	\$12,000	638753	1.93
\$	7.75	\$14,921	643900	1.93
\$	7.24	\$14,000	650736	1.94
\$	8.85	\$17,698	638316	2.00
\$	10.00	\$20,000	640134	2.00
\$	5.93	\$12,000	649711	2.03
\$	7.41	\$15,000	640098	2.03
\$	8.89	\$16,000	641411	2.03
\$	5.24	\$11,000	650347	2.10
\$	7.14	\$15,000	644504	2.10
\$	7.14	\$15,000	643321	2.10
\$	7.40	\$15,550	637455	2.10
\$	7.57	\$15,908	649350	2.10
\$	7.72	\$16,220	649501	2.10
\$	6.13	\$19,177	649201	2.10

	cost/watt	accepted value	permit #	system size (kW)
\$	9.52	\$20,000	647928	2.10
\$	9.28	\$20,000	645808	2.16
\$	9.28	\$20,000	648056	2.16
\$	9.38	\$21,000	637883	2.24
\$	5.78	\$13,000	638306	2.25
\$	5.78	\$13,000	646747	2.25
\$	6.67	\$15,000	638873	2.25
\$	7.11	\$16,000	638512	2.25
\$	8.00	\$18,000	638334	2.25
\$	8.89	\$20,000	638522	2.25
\$	8.89	\$20,000	638126	2.25
\$	8.89	\$20,000	638318	2.25
\$	8.89	\$20,000	638311	2.25
\$	9.33	\$21,000	640845	2.25
\$	6.09	\$14,000	651082	2.30
\$	7.83	\$18,000	646895	2.30
\$	7.38	\$17,000	641413	2.31
\$	4.24	\$10,000	641393	2.36
\$	9.62	\$24,000	637811	2.50
\$	7.40	\$19,425	646756	2.83
\$	11.43	\$30,000	638894	2.83
\$	5.58	\$15,000	644712	2.89
\$	5.58	\$15,000	647803	2.89
\$	5.80	\$18,000	651083	2.76
\$	8.33	\$23,000	646400	2.76
\$	6.78	\$19,000	643320	2.80
\$	8.80	\$25,000	650351	2.84
\$	7.97	\$24,000	647079	3.01
\$	7.32	\$22,828	646773	3.12
\$	7.78	\$24,370	645330	3.14
\$	5.71	\$18,000	640841	3.15
\$	6.03	\$19,000	641348	3.15
\$	6.67	\$21,000	641513	3.15
\$	7.94	\$25,000	638345	3.15
\$	8.89	\$28,000	641087	3.15
\$	8.89	\$28,000	642506	3.15
\$	8.89	\$28,000	650170	3.15
\$	6.98	\$24,000	641082	3.44
\$	6.38	\$22,000	645090	3.45
\$	4.00	\$14,000	651054	3.50
\$	5.71	\$20,000	649568	3.50
\$	8.38	\$28,318	638705	3.50
\$	8.71	\$30,471	640358	3.50
\$	9.71	\$34,000	640822	3.50
\$	11.43	\$40,000	638527	3.50
\$	5.58	\$20,000	645792	3.80
\$	6.94	\$25,000	648783	3.80
\$	7.78	\$28,000	648564	3.80
\$	8.33	\$30,000	648368	3.80
\$	14.17	\$51,000	641182	3.80
\$	11.03	\$40,000	638313	3.83
\$	7.57	\$28,000	650266	3.70
\$	14.93	\$58,000	641201	3.75
\$	21.33	\$80,000	641202	3.75
\$	3.72	\$15,000	648134	4.03
\$	5.68	\$23,000	638314	4.05
\$	6.17	\$25,000	640096	4.05
\$	8.15	\$33,000	637285	4.05
\$	8.64	\$35,000	638833	4.05
\$	8.89	\$36,000	638310	4.05
\$	7.07	\$28,000	650339	4.10
\$	7.25	\$30,000	648209	4.14
\$	7.22	\$30,313	638817	4.20
\$	11.43	\$50,000	641027	4.38
\$	7.25	\$33,000	638829	4.55
\$	7.41	\$35,000	649717	4.73
\$	8.25	\$38,000	649207	4.73
\$	7.25	\$35,000	649443	4.83
\$	8.08	\$30,000	638177	4.95
\$	8.08	\$40,000	649719	4.95
\$	8.94	\$35,000	649785	5.04
\$	8.33	\$42,000	650348	5.04
\$	7.47	\$40,000	649728	5.36

	cost/watt	accepted value	permit #	system size (kW)
\$	3.70	\$20,000	847304	5.40
\$	7.43	\$41,000	850042	5.52
\$	5.38	\$30,000	849715	5.80
\$	8.93	\$50,000	842088	5.80
\$	7.05	\$40,000	847675	5.87
\$	7.05	\$40,000	849543	5.87
\$	7.05	\$40,000	849720	5.87
\$	7.05	\$40,000	849580	5.87
\$	8.70	\$52,000	846286	5.88
\$	7.81	\$45,848	839818	6.00
\$	3.17	\$20,000	850352	6.30
\$	6.35	\$40,000	848828	6.30
\$	8.98	\$44,000	841883	6.30
\$	6.15	\$40,000	849723	6.50
\$	2.42	\$18,236	847622	6.70
\$	2.42	\$18,236	847623	6.70
\$	2.42	\$18,236	847624	6.70
\$	5.48	\$37,017	846376	6.75
\$	5.93	\$40,000	847672	6.75
\$	11.43	\$80,000	841028	7.00
\$	4.78	\$34,000	851197	7.14
\$	7.59	\$55,000	850287	7.25
\$	7.81	\$58,000	849542	7.43
\$	8.85	\$68,000	837819	7.80
\$	6.98	\$55,000	850174	7.88
\$	4.97	\$40,000	849188	8.05
\$	4.32	\$35,000	849387	8.10
\$	7.38	\$62,000	841252	8.40
\$	8.80	\$80,000	848770	8.82
\$	8.80	\$80,000	849725	8.82
\$	8.80	\$80,000	849713	8.82
\$	6.30	\$62,082	850356	9.88
\$	2.47	\$25,000	850298	10.12
\$	7.18	\$75,131	845418	10.50
\$	7.23	\$82,000	849210	11.34
\$	5.87	\$64,800	842509	11.40
\$	8.88	\$102,000	839308	11.48
\$	7.81	\$123,000	837978	15.75
\$	6.20	\$103,000	850858	16.80

EXHIBIT B

0 - 20 kW

(w/ 35% HI tax credit)

\$ 254

EXHIBIT C

STAND. COM. REP. NO.

254

Honolulu, Hawaii

FEB 20 2009

RE: S.B. No. 464
S.D. 1

Honorable Colleen Hanabusa
President of the Senate
Twenty-Fifth State Legislature
Regular Session of 2009
State of Hawaii

Madam:

Your Committee on Energy and Environment, to which was referred S.B. No. 464 entitled:

"A BILL FOR AN ACT RELATING TO TAXATION,"

begs leave to report as follows:

The purpose of this measure is to make amendments to the Hawaii Renewable Energy Tax Credit by:

- (1) Making it refundable;
- (2) Removing the restriction on the type of income that it can be used to offset;
- (3) Making it specially allocable; and
- (4) Making it available to Hawaii insurance companies.

Testimony in support of this measure was submitted by eight private organizations. The Department of Taxation submitted testimony in support of the intent of the measure, with comments. Copies of written testimony are available for review on the Legislature's website.

Your Committee finds that, as currently drafted, the Hawaii Renewable Energy Tax Credit has very limited appeal as a financial incentive. This measure expands the class of investors who can use the credit, thereby attracting much more investment capital to renewable energy in Hawaii.

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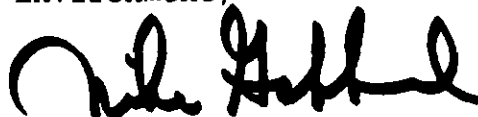


EXHIBIT C

Your Committee has amended this measure by making technical, nonsubstantive stylistic amendments to the proposed section 235-12.5(h)(2), Hawaii Revised Statutes, to conform that provision with other sections of this measure.

As affirmed by the record of votes of the members of your Committee on Energy and Environment that is attached to this report, your Committee is in accord with the intent and purpose of S.B. No. 464, as amended herein, and recommends that it pass Second Reading in the form attached hereto as S.B. No. 464, S.D. 1, and be referred to the Committee on Ways and Means.

Respectfully submitted on
behalf of the members of the
Committee on Energy and
Environment,



MIKE GABBARD, Chair



STAND. COM. REP. NO.

1286

Honolulu, Hawaii

March 27, 2009

RE: S.B. No. 464
S.D. 2
H.D. 1

Honorable Calvin K.Y. Say
Speaker, House of Representatives
Twenty-Fifth State Legislature
Regular Session of 2009
State of Hawaii

Sir:

Your Committee on Energy & Environmental Protection, to which
was referred S.B. No. 464, S.D. 2, entitled:

"A BILL FOR AN ACT RELATING TO TAXATION,"

begs leave to report as follows:

The purpose of this measure is to encourage capital
investment in renewable energy technologies by making the
investment more attractive to a wider range of investors who would
be able to make use of the renewable energy technologies income
tax credit.

The measure removes the restriction on the type of income the
tax credit can be used to offset, allows special allocations of
the tax credit in certain cases, and prohibits a taxpayer who
claims the renewable energy technologies income tax credit from
claiming any other income tax credit using the same actual costs
or from qualifying as a qualified high technology business. The
measure also excludes a depreciation deduction from passive
activity losses.

The American Council of Engineering Companies of Hawaii, the
Blue Planet Foundation, the Hawaii Renewable Energy Alliance, the
Hawaii Solar Energy Association, Hawaiian Electric Company and its
subsidiary utilities, Maui Electric Company and Hawaii Electric
Light Company, Sennet Capital LLC, and SunPower Systems
Corporation testified in support of the measure. The Building

SB464 HD1 HSCR LRB 09-3114.doc



Industry Association of Hawaii testified in support of the intent of the measure. The Department of Taxation testified in opposition to the measure. Dowling Company, Inc. and the Tax Foundation of Hawaii submitted comments on the measure.

Your Committee finds that preventing passive activity losses from including a depreciation deduction would cause a lack of conformity between state tax law and federal tax law and would result in a substantial reduction in taxable income. Your Committee also finds that, rather than allowing special allocations of the renewable energy technologies income tax credit in certain cases, it would be simpler and more practical to allow most taxpayers to elect refundable or nonrefundable treatment of the tax credit.

Your Committee has amended this measure by deleting the contents of this measure and replacing it with the contents of Part III of S.B. No. 1173, S.D. 1, to conform to the Internal Revenue Code by amending the renewable energy technologies income tax credit to encourage use of solar and wind energy systems and permitting a portion of the excess of the credit over payments due to be refunded to the taxpayer in certain circumstances.

As affirmed by the record of votes of the members of your Committee on Energy & Environmental Protection that is attached to this report, your Committee is in accord with the intent and purpose of S.B. No. 464, S.D. 2, as amended herein, and recommends that it pass Second Reading in the form attached hereto as S.B. No. 464, S.D. 2, H.D. 1, and be referred to the Committee on Finance.

Respectfully submitted on
behalf of the members of the
Committee on Energy &
Environmental Protection,

Hermina Morita

HERMINA MORITA, Chair



STAND. COM. REP. NO.

1723

Honolulu, Hawaii

April 9, 2009

RE: S.B. No. 464
S.D. 2
H.D. 2

Honorable Calvin K.Y. Say
Speaker, House of Representatives
Twenty-Fifth State Legislature
Regular Session of 2009
State of Hawaii

Sir:

Your Committee on Finance, to which was referred S.B. No. 464, S.D. 2, H.D. 1, entitled:

"A BILL FOR AN ACT RELATING TO TAXATION,"

begs leave to report as follows:

The purpose of this bill is to promote the use of, and investment in, renewable energy resources by amending the renewable energy technologies income tax credit to encourage the use of solar and wind energy systems, and permitting a portion of the excess of the credit over payments due to be refunded to the taxpayer in certain circumstances.

The Department of Taxation, Hawaii Solar Energy Association, and SunPower Systems Corporation testified in support of this bill. The Tax Foundation of Hawaii, Building Industry Association of Hawaii, Land Use Research Foundation of Hawaii, Hawaiian Electric Company, Maui Electric Company, and Hawaii Electric Light Company provided comments on this measure.

Your Committee has amended this bill by:

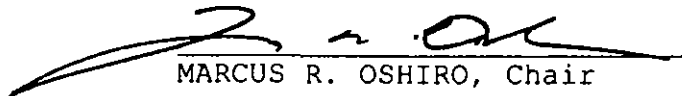
- (1) Changing its effective date to July 1, 2020, to encourage further discussion; and
- (2) Making technical, nonsubstantive amendments for clarity, consistency, and style.

SB464 HD2 HSCR FIN HMS 2009-3722



As affirmed by the record of votes of the members of your Committee on Finance that is attached to this report, your Committee is in accord with the intent and purpose of S.B. No. 464, S.D. 2, H.D. 1, as amended herein, and recommends that it pass Third Reading in the form attached hereto as S.B. No. 464, S.D. 2, H.D. 2.

Respectfully submitted on
behalf of the members of the
Committee on Finance,



MARCUS R. OSHIRO, Chair



CONFERENCE COMMITTEE REP. NO.

98

Honolulu, Hawaii

, 2009

RE: MAY 01 2009
S.B. No. 464
S.D. 2
H.D. 2
C.D. 1

Honorable Colleen Hanabusa
President of the Senate
Twenty-Fifth State Legislature
Regular Session of 2009
State of Hawaii

Honorable Calvin K.Y. Say
Speaker, House of Representatives
Twenty-Fifth State Legislature
Regular Session of 2009
State of Hawaii

Madam and Sir:

Your Committee on Conference on the disagreeing vote of the Senate to the amendments proposed by the House of Representatives in S.B. No. 464, S.D. 2, H.D. 2, entitled:

"A BILL FOR AN ACT RELATING TO TAXATION,"

having met, and after full and free discussion, has agreed to recommend and does recommend to the respective Houses the final passage of this bill in an amended form.

The purpose of this measure is to promote the use of, and investment in, renewable energy resources by amending the renewable energy technologies income tax credit to encourage the use of solar and wind energy systems, and permitting a portion of the excess of the credit over payments due to be refunded to the taxpayer under certain circumstances.

Your Committee on Conference finds that making this tax credit refundable at a reduced level will enable the solar industry in Hawaii to expand its role as an engine of economic stimulus and job creation in the current recessionary environment. Last year, the solar industry grew five hundred per cent and further room for

2009-2419 SCCR SMA.doc



growth remains. At present, the solar industry is responsible for approximately two thousand jobs in Hawaii, but the market is artificially capped by inconsistencies in the tax code that make it virtually impossible for most would-be investors to use the credit. Without access to this tax credit, solar projects in Hawaii are not financially viable.

Your Committee on Conference has amended this measure by:

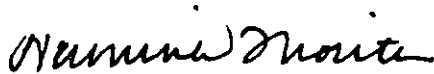
- (1) Changing its effective date from "July 1, 2020" to "July 1, 2009";
- (2) Making it applicable to taxable years beginning after December 31, 2008; and
- (3) Making technical, nonsubstantive amendments for the purpose of style.

As affirmed by the record of votes of the managers of your Committee on Conference that is attached to this report, your Committee on Conference is in accord with the intent and purpose of S.B. No. 464, S.D. 2, H.D. 2, as amended herein, and recommends that it pass Final Reading in the form attached hereto as S.B. No. 464, S.D. 2, H.D. 2, C.D. 1.

Respectfully submitted on behalf
of the managers:

ON THE PART OF THE HOUSE

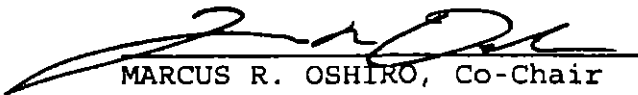
ON THE PART OF THE SENATE



HERMINA MORITA, Co-Chair



MIKE GABBARD, Chair



MARCUS R. OSHIRO, Co-Chair



DONNA MERCADO KIM, Co-Chair



EXHIBIT D

**Testimony before the
Senate Committee on**

Energy and Environment

S.B. 464 -- Relating to Taxation

**Tuesday, February 10, 2009
3:45 pm, Conference Room 225**

**By Arthur Seki
Director, Technology
Hawaiian Electric Company, Inc.**

Chair Gabbard, Vice-Chair English and Members of the Committee:

My name is Arthur Seki. I am the Director of Technology for Hawaiian Electric Company. I am testifying on behalf of Hawaiian Electric Company (HECO) and its subsidiary utilities, Maui Electric Company (MECO) and Hawaii Electric Light Company (HELCO). We support S.B. 464 which amends the renewable energy tax credit. The proposed changes in this bill will make it more attractive for more entities to take advantage of this benefit thus creating more jobs and helping stimulate the sluggish economy.

Thank you for the opportunity to testify.

BEFORE THE PUBLIC UTILITIES COMMISSION
OF THE STATE OF HAWAI'I

In the Matter of)	
)	
PUBLIC UTILITIES COMMISSION)	Docket No. 2008-0273
)	
Instituting a Proceeding to)	
Investigate The Implementation)	
<u>of Feed-in Tariffs.</u>)	

DECLARATION OF KEITH CRONIN

1. I am the founder and chief executive officer of SunHedge, a Hawai'i based solar energy consulting firm. I have been engaged in the solar energy business for 17 years, 12 of which I have spent specifically in the Hawai'i market. In 1999, I founded a renewable energy company, Island Energy Solutions Inc., whose mission was to assist Hawai'i in reducing its dependency on imported petroleum products for electricity generation, via the deployment solar photovoltaic systems. In 2007, my company was acquired by SunEdison, a pioneer and global leader in solar electricity, and I became the President of SunEdison Hawai'i. Over the years, I have been engaged in every aspect of the Hawai'i solar energy industry, including the financing, marketing, contracting, competitive bidding, integration, development, permitting, regulatory affairs, and construction of solar energy projects. Through these years of

experience, I am directly and intimately familiar with the Hawai'i solar energy market.

2. Based on my knowledge and understanding of the Hawai'i solar energy market, the refundable Hawai'i state income tax credit for solar energy systems is a critical linchpin for financing solar energy projects in this state. The feed-in tariff for solar energy systems must incorporate this refundable credit in its rates to serve its purpose of promoting solar energy development in Hawai'i.

3. Indeed, I can speak from direct, personal experience on this issue. My former company, Island Energy Solutions Inc., was blessed with an amazing staff and client referrals that enabled year-over-year growth, and this was attractive to SunEdison since the market potential for Hawai'i was mature. The acquisition by SunEdison brought a major industry player into the Hawai'i market and promising potential for further solar energy development in Hawai'i. SunEdison develops solar photovoltaic projects for a host of different types of clientele and is well-known in the industry for working with customers like Staples, Wal-Mart, Whole Foods, Kohls, government agencies and utilities.

4. SunEdison contracted with Wal-Mart to install solar photovoltaic systems on six Wal-Mart stores. However, because of the limited usefulness of the 35 percent nonrefundable tax

credit, the financing for the projects could not work, and after construction on only two stores, SunEdison and Wal-Mart abandoned plans to continue building out their portfolio.

5. SunEdison was also contracted to provide the County of Kaua'i a system on the Lihue Civic Center. This project was also mothballed, due to the limiting nature of the 35 percent tax credit.

6. Such difficulties with the 35 percent nonrefundable tax credit were and still are common and widespread throughout the Hawai'i solar energy market. To address this problem, the solar industry supported legislation to amend the state tax credit to make it refundable. The measure was defeated at the legislature in 2008.

7. Without a refundable credit, it was very difficult if not impossible for SunEdison to conduct business in Hawai'i. Thus, in September 2008, SunEdison left the state, resulting in approximately 25 people losing their jobs and distancing Hawai'i from its goal of weaning itself of its dependence on petroleum for generating electricity.

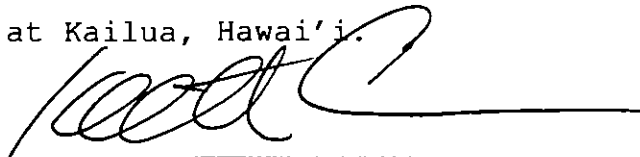
8. The state tax law was finally amended to provide a refundable credit in 2009. While this was welcomed by our industry, support for the refundable credit must remain clear and consistent to convince new and mature businesses to consider

Hawai'i as an opportunity for their solar business plans and enter this market.

9. To sustain a healthy solar industry, create green-collar jobs, and support our state's goals of a sustainable energy future, we need to create a conducive business environment with the right, consistent market incentives and signals. That is why the feed-in tariff must incorporate the refundable state tax credit to enable the financing necessary to drive the development of solar energy resources in Hawai'i.

I declare under penalty of perjury under the laws of the United States of America that the foregoing is true and correct.

Dated: January 18, 2010, at Kailua, Hawai'i.



Keith Cronin

BEFORE THE PUBLIC UTILITIES COMMISSION
OF THE STATE OF HAWAI'I

In the Matter of)	
)	
PUBLIC UTILITIES COMMISSION)	Docket No. 2008-0273
)	
Instituting a Proceeding to)	
Investigate The Implementation)	
<u>of Feed-in Tariffs.</u>)	

DECLARATION OF LARRY GILBERT

1. I am the Managing Director and Chief Executive of Sennet Capital LLC, a Hawai'i-based merchant bank that provides and arranges funding for Hawai'i companies and renewable energy projects. We are one of the leading experts in solar project financing in the Hawai'i market. As an example of our work, we completed one of largest solar project financings in Hawai'i, enabling Hoku Solar to install solar panels on all the neighbor island airports for the Department of Transportation of the State of Hawai'i.

2. Our extensive, direct experience in the Hawai'i solar energy market establishes that the refundable (24.5 percent) state Renewable Energy Technologies Income Tax Credit for solar projects in Haw. Rev. Stat. § 235-12.5 is a crucial tool to facilitate the financing of commercial-scale solar projects in Hawai'i. On the other hand, the non-refundable state tax credit is nearly useless to almost all categories of Hawai'i investors

and almost uniformly useless to non-Hawai'i investors, and in almost all cases provides them no meaningful incentive to invest in such projects in Hawai'i, especially when competing against alternatives in other jurisdictions, many of which have generous incentives. Accordingly, if the Hawai'i feed-in tariff is to succeed in promoting the development of commercial-scale solar projects, it must include rates based on the refundable state tax credit.

3. The state non-refundable state tax credit does not work unless there is a substantial amount of state tax liability for the credit to offset, which rarely is the case for solar projects in Hawai'i. The non-refundable credit thus makes Hawai'i solar projects unfeasible or unattractive versus other investment options, and has resulted in a poor market for solar projects in Hawai'i compared to the potential of that market.

4. During 2008, for example, we worked to finance nearly \$50 million in Hawai'i solar projects. We spent a great deal of time discussing with Hawai'i investors their interest and ability to use the non-refundable state tax credit. Our efforts resulted in zero dollars from Hawai'i investors for solar projects that entire year.

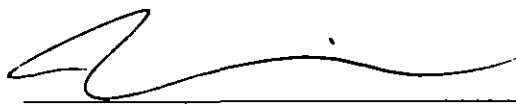
5. The extreme difficulty of raising capital for the Hawai'i solar market, and the consequent lack of development in that market, directly led to the proposal and passage of the

refundable state tax credit in Act 154 in 2009. This refundable credit provides a key to unlocking the potential for the Hawai'i market to attract hundreds of millions per year in investment capital for solar projects, as we are now seeing with larger scale successful third-party financed projects contracted by Kamehameha Schools; the State Department of Education, and the O'ahu and Maui Community Colleges. Without the 24.5 percent refundable option none of these projects would have been viable.

6. To provide meaningful incentives to invest in solar projects in Hawai'i, the feed-in tariff must provide rates that incorporate the use of the refundable (24.5 percent) state tax credit. Otherwise, the proven limitations and failures of the non-refundable credit in the Hawai'i market will simply repeat themselves and in all probability cause the feed-in tariff to largely fail as well.

I declare under penalty of perjury under the laws of the United States of America that the factual statements in the foregoing are true and correct, and that the opinions expressed by me are in fact my current opinions on the matters discussed.

Dated: January 21, 2010, at Honolulu,
Hawai'i.



LARRY GILBERT

CERTIFICATE OF SERVICE

The undersigned hereby certifies that, on this date, a copy of the foregoing document was duly served by first-class postage prepaid mail and electronic mail to the following parties addressed as follows:

Dean Nishina
Executive Director
Dept. Of Commerce And Consumer Affairs
Division Of Consumer Advocacy
P. O. Box 541
Honolulu, HI 96809

2 copies via U.S. Mail
Dean.K.Nishina@dcca.hawaii.gov

The undersigned hereby certifies that, on this date, a copy of the foregoing document was duly served by electronic mail to the following parties addressed as follows:

Lane H. Tsuchiyama, Esq.
Counsel for Division of Consumer Advocacy

lane.h.tsuchiyama@dcca.hawaii.gov

Dean Matsuura
Dan Brown
Marisa Chun
Kevin Katsura
Rosella Motoki
Scott Seu
Hawaiian Electric Company, Inc.

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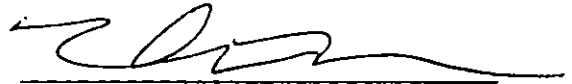
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